



Washington State Department of Transportation



American Public Works Association
Washington State Chapter

Technical Commentary for Standard Plan B-1b Catch Basin Type 1P

General Information

Background: The Type 1P catch basin was developed from a City of Seattle standard entitled “Catch Basin Type 241”. The Type 1P is intended to be used for collecting runoff from relatively small areas such as parking lots.

Maximum Pipe Size: The maximum knockout size of the Type 1P is limited to 14 inches. It is recommended that a gap of 1.5 inches be provided between the knockout wall and the outside of the pipe. The gap facilitates pipe installation into the catch basin. Therefore, the maximum pipe outside diameter that should be inserted into the Type 1P is 11 inches. Depending upon the type of pipe material used, the maximum pipe inside diameter that should be used with a Type 1P is 8 to 10 inches. WSDOT storm sewer design criteria allows the use of pipe diameters down to 8 inches only for single laterals that are 50 feet in length or less.

Deep Sump: The sump on a Type 1P is deeper than the sump shown on either the Type 1 or Type 1A. The sump serves two purposes. First, because of the small pipe diameters used with a Type 1P, a larger sump volume is provided so that sediments can be captured prior to entering the pipe system. Secondly, the deeper sump will accommodate an outlet trap placed in the catch basin to act as an oil containment feature.

Outlet Trap: Included with this commentary are copies of City of Seattle standards detailing the materials and placement of an outlet trap in a Type 1P catch basin. The outlet trap consists of a galvanized sheet metal ell, with one end inserted into the outlet pipe and the other end extending down into the catch basin. As the catch basin fills, oil trapped in the catch basin will rise to the water surface, forming a film on the water surface. If an outlet trap is not provided, the oil film will exit the catch basin once the water level in the catch basin reaches the outlet pipe invert elevation. When an outlet trap is provided, the oil film will remain in the catch basin while clean water is drawn out from below the film.

Maximum Depth: The maximum depth for this structure, as well as the Type 1 and Type 1L catch basins, is specified as 5 feet. The depth is measured from the pipe invert to the finished roadway grade. Division 7-05.3 requires that all catch basins be watertight. In order to meet this requirement, it is often necessary to access the catch basin to regrout the sides of the catch basin or to remortar the joint between the pipe and the catch basin wall. Exceeding the 5-foot depth significantly increases the difficulty in performing these repairs. It is recommended that a Type 2 catch basin be specified when the maximum depth exceeds 5 feet.

The maximum depth is not a concern regarding routine maintenance such as cleaning because catch basins are cleaned with the use of a vactor truck. The vacuum systems on most vactor trucks can effectively draw material from depths up to 15 feet.

Catch Basin Taper: The catch basin may be tapered to facilitate removing the catch basin from the forms after it has been fabricated. Often the catch basin is fabricated upside down, which results in the top being larger than the bottom. All thickness and width dimensions are measured at the top of the base section.

Flow Rate Through the Catch Basin: The flow rate through the catch basin is generally controlled by either the grate inlet or the pipes entering or exiting the catch basin. The storage capability provided by the catch basin is relatively small and should be ignored in storm sewer calculations.

Frame and Grate: The technical commentary for Standard Plan B-2a discusses installing the frame and grate with the flange down or cast into the adjustment section, as described on note 4 of this Standard Plan.

Applicable Specifications

6-02.3	Construction Requirements for Concrete Structures
7-05	Manholes, Inlets, and Catch Basins
9-04.3	Joint Mortar
9-05.15(2)	Metal Frame, Grate and Solid Metal Cover for Catch Basins or Inlets
9-07.7	Wire Mesh
9-12.4 and 5	Precast Concrete Manholes and Catch Basins

Referenced Standard Plans

B-2a	Metal Frame and Grate for Catch Basin and Inlet
B-2b	Vaned Grate
B-1z	Miscellaneous Details for Manholes and Catch Basins

Other Information

Standard Item Number: Incidental Item

Storm sewer design criteria located in Chapter 6 of WSDOT's Hydraulics Manual

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